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(54) HIGH SPEED ROLLING BEARING

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(57) Abstract:

PROBLEM TO BE SOLVED: To actualize low torque and low heat generation and improve a seizure-resistant property and wear-resistant property at high speed rotation.

SOLUTION: In an angular contact ball bearing used for high speed rotation in which a plurality of balls are arranged between an inner ring 11 and outer ring 12 via a retainer 14 and at least one of surfaces of their base material among an inner ring raceway, an outer ring raceway, balls 13, and a retainer 14 is formed by steel and a DLC film is also formed on the surface of the base material, the DLC film is provided with an intermediate layer made of metal components, a compound layer made of a carbon component, and a carbon layer. The compound layer is a graded layer in which composition is consecutively changed from the intermediate layer to the carbon layer, and plastic deformation hardness of the DLC film is set at 8 to 35 GPa.

